Overview:

Help 6th Grade STEM! As you can tell, our TMS garden is looking pretty sad…. our school needs our help! Now that you've seen it yourself, your job is to come up with the best REDESIGN of our TMS Garden! To help guide you through the redesign process, you will need to complete the following deliverables:

Part I: 3D Model

Create an ACCURATE and TO SCALE 3D model of YOUR GROUP'S idea for redesign!
1. Minimum requirements-you must include every garden bed. Any additional item you include to sketch (such as aquaponics pond, greenhouse, etc., will go towards some extra points for your team)
2. Dimensions in your 3D model must be exact!
3. Identify what should be planted in each garden bed in your model (see Part 3: Science)

Part 2: Math

How much soil will you need to fill the garden beds?
1. Create a document (think Excel) to show all calculations…you will need to specifically answer the following questions:
- How much soil is needed for each garden bed?
- How much soil is needed total?
- How much will this cost?
2. How much material will be required to build the garden beds?
- What material will you use? How much will it cost?
3. What will you plant? Why? How much will this cost?
**You must look at materials we already have and calculate what is additionally needed—all supplies must come from Home Dept

Part 3: Science

To redesign the garden beds a horticulturist (that's you!) needs to understand what you can grow! Questions you will need to answer include:
1. What are the components of the soil you chose? List component and percentages.

2. Why did you choose this soil over other types? What is the benefit?

Part III: Technology/Engineering
HOW will you present this information? In your Digital Notebook! You will complete a Digital Notebook to identify the steps of the Engineering Design Process that occur within this PBL.

Part IV: Presentation

You will create a presentation that includes all portions (Part I-III) to explain to the group and garden experts why your idea should be selected. The experts will select a winning idea and the redesign will begin!

Garden Re-Design Project Rubric

	Beginner 0	Developing 2	Accomplished 3	Advanced 4
Part One: 3D Design	-3D design is missing multiple elements/garden beds and is not representative of the TMS garden	-Key, text, or images are NOT included in garden beds -Garden bed dimensions in model are NOT accurate OR -Distance between garden beds is NOT accurate.	-Key, text, or images are included in garden beds -Garden bed dimensions in model are accurate -Distance between garden beds is NOT accurate	-Garden beds include either a KEY of what will be in each garden bed, text, OR images identifying what will be in each garden bed -Garden bed dimensions in model are accurate and represent dimensions in physical garden -Distance between garden beds
Part Two: Math	-Answers to questions are missing completely and no math is present to show calculations	- All three questions from "requirements" section are NOT answered completely OR - Math is NOT shown OR NOT accurate	- All three questions from "requirements" section are NOT answered completely - Math is shown and accurate	- All three questions from "requirements" page are answered completely -Math is shown AND accurate in a separate document
Part Three: Science	- All information is missing	- Type of soil chosen and components listed -No list of plants chosen is present	- Components of soil not listed - List of plants chosen (as labeled on 3D model), when they should be planted, and how much space is needed per plant	- The type of soil chosen with components listed of that soil - List of plants chosen (as labeled on 3D model), when they should be planted, and how much space is needed per plant
Part Four: Presentation	• Shows no interest in topic presented • Fails to increase audience understanding of knowledge of topic • Does not have grasp of information and cannot answer questions about subject • Holds no eye contact with audience, as entire report is read from notes • Speaks in low volume and/ or monotonous tone, which causes audience to disengage	-Shows little or mixed feelings about the topic being presented -Raises audience understanding and knowledge of some points -Is uncomfortable with information and can answer only rudimentary questions -Displays minimal eye contact with audience, while reading mostly from the notes -Speaks in uneven volume with little or no inflection	-Shows some enthusiastic feelings about topic -Raises audience understanding and awareness of most points -Is at ease with expected answers to all questions, without elaboration -Consistent use of direct eye contact with audience, but still returns to notes -Speaks with satisfactory variation of volume and inflection	-Demonstrates strong enthusiasm about topic during entire presentation -Convinces audience to recognize the validity and importance of the subject -Demonstrates full knowledge by answering all class questions with explanations and elaboration -Holds attention of entire audience with the use of direct eye contact, seldom looking at notes—no use of "um, like, etc." -Speaks with fluctuation in volume and inflection to maintain audience interest and emphasize key points

Extra Credit (up to 3 points for a total of 19/16—for exceptional additions, going above and beyond in any capacity, etc.)

Total Points: _____/ 16

Percentage: _____/ 100